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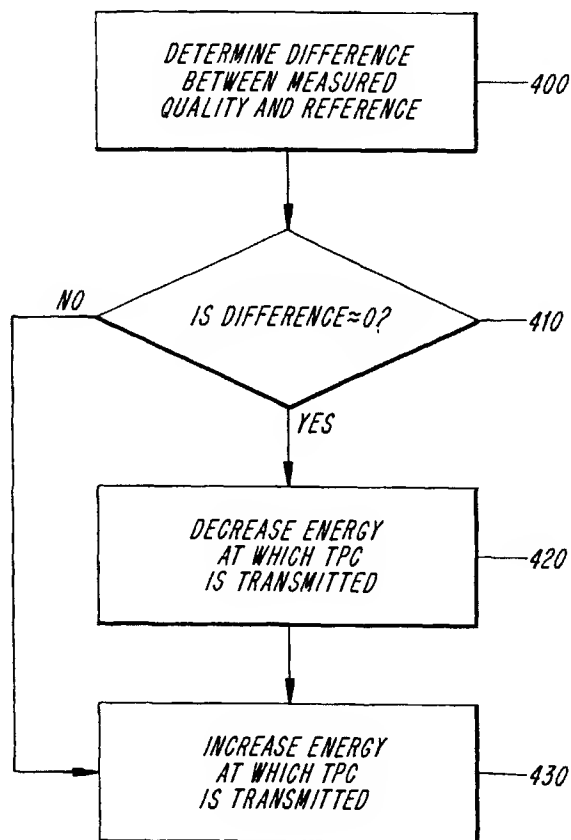
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09/663,269 18 September 2000 (18.09.2000) US
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[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR SETTING TRANSMIT POWER CONTROL COMMAND ENERGY



(57) Abstract: The energy at which a transmit power control is transmitted is set based on how important it is that the transmit power control command is received. As an indication of how important it is that the transmit power control command is received, a difference between a measured quality, e.g., SIR, of a received signal and a reference may be determined. The energy at which the transmit power control command is transmitted may be set based on this difference. The energy of the transmit power control command may be set by adjusting the power at which the transmit power control command is transmitted and/or by adjusting the coding of the transmit power control command. If the difference is determined to be substantially zero, the energy at which the transmit power control command is transmitted is decreased, by an amount that is a function of the difference. If the difference is determined not to be substantially zero, the energy at which the transmit power control command is transmitted is increased by an amount that is a function of the difference. This technique may be used for uplink transmit power control commands or for downlink power control commands. For uplink transmit power control commands, the technique is performed in the network, e.g., in a base station. For downlink transmit power control commands, the technique is performed in, e.g., a remote terminal.

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## INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER  
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According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No.        |
|------------|---|------------------------------|
| X          | WO 00 31893 A (QUALCOMM INC)<br>2 June 2000 (2000-06-02)<br><br>abstract<br>page 8, line 11 -page 11, line 16<br>figures 2,3<br><br>---   | 1,2,4,<br>10,12,<br>13,15,21 |
| A          | SALONAH O ET AL: "FLEXIBLE POWER<br>ALLOCATION FOR PHYSICAL CONTROL CHANNEL IN<br>WIDEBAND CDMA"<br>HOUSTON, TX, MAY 16 - 20, 1999, NEW YORK,<br>NY: IEEE, US,<br>vol. CONF. 49, 16 May 1999 (1999-05-16),<br>pages 1455-1458, XP000903286<br>ISBN: 0-7803-5566-0<br>page 1455<br><br>---<br><br>-/-- | 1,2,4,<br>10-13,<br>15,21,22 |



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No. |
|------------|--|-----------------------|
| A          | <p>USUDA M ET AL: "OPTIMIZING THE NUMBER OF DEDICATED PILOT SYMBOLS FOR FORWARD LINK IN W-CDMA SYSTEMS"<br/>TOKYO, JAPAN, MAY 15-18, 2000, NEW YORK, NY: IEEE, US,<br/>vol. CONF. 51, 15 May 2000 (2000-05-15),<br/>pages 2118-2122, XP000986979<br/>ISBN: 0-7803-5719-1<br/>abstract</p> <p>-----</p> |                       |

# INTERNATIONAL SEARCH REPORT

Information on patent family members

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| Patent document<br>cited in search report |   | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|---|---|---------------------|----------------------------|---------------------|
| WO 0031893                                | A | 02-06-2000          | US 6208873 B1              | 27-03-2001          |
|   |   |                     | AU 1830400 A               | 13-06-2000          |
|   |   |                     | BR 9915619 A               | 08-01-2002          |
|   |   |                     | EP 1145461 A2              | 17-10-2001          |
|   |   |                     | WO 0031893 A2              | 02-06-2000          |
| <hr/>                                     |   |                     |                            |                     |